

WHAT IS CLAIMED IS:

1 1. An apparatus for determining a channel state of a set  
2 top box, the apparatus comprising:

3 a sensing stage capable to detect light intensity from  
4 various positions on a display and generating output  
5 signals based on light intensity detected from each of the  
6 various positions;

7 a comparison stage communicatively coupled to the  
8 sensing stage and capable to generate digital values by  
9 comparison of each generated output signals with a  
10 threshold value; and

11 an interface communicatively coupled to the sensing  
12 stage and capable to generate a feedback signal based upon  
13 the digital values to indicate a channel state of the set  
14 top box.

1 2. The apparatus of claim 1 wherein the feedback signal  
2 is transmitted to a companion box device for processing,  
3 thereby permitting the companion box device to detect the  
4 channel state of the set top box.

1 3. The apparatus of claim 1 wherein the sensing stage  
2 comprises a plurality of light sensing devices, each of the

3 light sensing devices capable to detect light intensity at  
4 a corresponding position on the display.

1 4. The apparatus of claim 1 wherein the sensing stage  
2 comprises an array of light sensing devices capable to  
3 detect light intensity at the various positions on the  
4 display.

1 5. An apparatus for detecting a channel state of a set  
2 top box, the apparatus comprising:  
3 a sensing stage capable to sense output light from a  
4 plurality of light-sensing elements in a display of a set  
5 top box;  
6 an engine capable to determine a channel state of the  
7 display based on the output;  
8 a channel state analysis engine capable to compare the  
9 determined channel state with a desired channel state; and  
10 a response engine capable to send a change channel  
11 command to the set top box if the determined channel state  
12 does not match the desired channel state.

1 6. A method of determining a channel state of a set top  
2 box, the method comprising:

3        detecting states of light emitting devices in a  
4        display of a set top box;  
5        generating an analog value based on each detected  
6        state;  
7        comparing each analog value with a threshold value and  
8        generating a digital value for each compared analog value;  
9        and  
10       transmitting to a companion box device a bit stream  
11       having the generated digital values to permit the companion  
12       box device to determine a channel state of the set top box.

1       7.    A method of determining a channel state of a set top  
2       box, the method comprising:  
3             detecting states of light emitting devices in a  
4             display of a set top box;  
5             generating a feedback signal based on the detected  
6             states;  
7             determining a channel state of the set top box based  
8             on the feedback signal; and  
9             comparing the determined channel state with a desired  
10       channel state.

1       8.    A set top box channel state system, comprising:

2 a device including a plurality of light-sensing  
3 elements communicatively coupled to a display of a set top  
4 box, the display including a plurality of light emitting  
5 devices; and

6 a companion box device communicatively coupled to the  
7 light-sensing elements, the companion box device including  
8 an infrared blaster capable to send commands via  
9 an IR beam to the set top box,

10 a character recognition engine capable to  
11 determine set top box channel state as displayed on  
12 the display based on the output of the light-sensing  
13 elements,

14 a channel state analysis engine communicatively  
15 coupled to the character recognition engine and  
16 capable to determine if the channel state matches a  
17 desired channel state, and

18 a response engine communicatively coupled to the  
19 analysis engine and the IR blaster and capable to  
20 command the IR blaster to send a change channel  
21 command via IR beam to the set top box if the channel  
22 state does not match the desired channel state.

1 9. The set top box channel state system of claim 8,  
2 wherein the plurality of light-sensing elements is equal in  
3 number to the plurality of light emitting devices in the  
4 display.

1 10. The set top box channel state system of claim 8,  
2 wherein the light-sensing elements are arranged in an  
3 array.

1 11. The set top box channel state system of claim 10,  
2 wherein the array includes 32 by 16 light-sensing elements.

1 12. The set top box channel state system of claim 8,  
2 wherein the device includes a second display configured to  
3 display the set top box channel state.

1 13. The set top box channel state system of claim 8,  
2 wherein the light-sensing elements include photodiodes.

1 14. A method of detecting a channel state of a set top  
2 box, the method comprising:  
3 sampling output from a plurality of light-sensing  
4 elements coupled to a display of a set top box;

5       determining a channel state of the display based on  
6   the output;  
7       comparing the determined channel state with a desired  
8   channel state; and  
9       sending a change channel command to the set top box if  
10   the determined channel state does not match the desired  
11   channel state.

1   15.   The method of claim 14, wherein the determining the  
2   channel state includes using character recognition  
3   software.

1   16.   The method of claim 14, wherein the determining the  
2   channel state includes comparing the output with values in  
3   a look-up table.

1   17.   The method of claim 14, wherein the light-sensing  
2   elements are photodiodes.

1   18.   The method of claim of claim 14, wherein the plurality  
2   of light-sensing elements is equal in number to a plurality  
3   of light-emitting devices in the display.

1   19.   The method of claim 14, wherein the plurality of  
2   light-sensing elements are arranged in an array.

1 20. The method of claim 19, wherein the array includes 32  
2 by 16 light-sensing elements.

1 21. The method of claim 14, further comprising displaying  
2 the determined channel state on a second display.

1 22. A machine-readable medium having stored thereon  
2 instructions to:

3 sample output from a plurality of light-sensing  
4 elements coupled to a display of a set top box;

5 determine a channel state of the display based on the  
6 output;

7 compare the determined channel state with a desired  
8 channel state; and

9 send a change channel command to the set top box if  
10 the determined channel state does not match the desired  
11 channel state.

1 23. The machine-readable medium of claim 22, wherein the  
2 determining the channel state includes using character  
3 recognition software.

1 24. The machine-readable medium of claim 22, wherein the  
2 determining the channel state includes comparing the output  
3 with values in a look-up table.

1 25. The machine-readable medium of claim 22, further  
2 comprising an instruction to display the determined channel  
3 state on a second display.

1 26. A system for detecting a channel state of a set top  
2 box, the method comprising:

3 means for sampling output from a plurality of light-  
4 sensing elements coupled to a display of a set top box;

5 means for determining a channel state of the display  
6 based on the output;

7 means for comparing the determined channel state with  
8 a desired channel state; and

9 means for sending a change channel command to the set  
10 top box if the determined channel state does not match the  
11 desired channel state.